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The reliability of the contact switching of the measuring signal

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Abstract

© 2016 IEEE.The analysis of the factors affecting reliability of the sealed contact in measuring chains of automated test systems is held. A number of factors of influence is attributed to the advantages of reed switches. Disadvantages of reed switches are divided into two groups, depending on the structural properties of the reed switch and the applied management methods. The paper presents analytical study of performance switching reliability in switching keys with serial, parallel and series-parallel key schemes with possible options enable leakage resistance. Unique positive properties of the contacts and insulation resistance of reeds defines characteristics of the 'perfect key'. The advantages of matrix management schemes were confirmed for many channel systems at automated testing of gas turbine engines. The solution the problem of increasing reliability of the contact switching at low-level signals (up to 50 mV) from thermocouples and strain gauges is provided. The description of the mechanisms of action fritting in the surface layers of the contacting surfaces, including reed switches is given.

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Keywords

contact, fritting, matrix control, measuring signal, reed switch, reliability, switching

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